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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,913	07/05/2005	Motoki Numata	2005_0725A	6927

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EXAMINER	
OH, TAYLOR V	
ART UNIT	**PAPER NUMBER**
1625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,913	NUMATA ET AL.	
	Examiner	Art Unit	
	Taylor Victor Oh	1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/06,5/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

The Status of Claims

Claims 1-16 are pending.

Claims 1-16 are rejected.

DETAILED ACTION

1. claims 1-16 are under consideration.

Priority

2. It is noted that this application is a 371 of PCT/JP03/14550 (11/14/2003), which has a foreign priority documents, JP 2002-330753 (11/14/2002) and JP 2002-330754 (11/14/2002).

Drawings

3. The drawing filed on 5/13/2005 is accepted by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 3-5 and their corresponding dependent claims are rejected under 35 U.S.C. 112, first paragraph, because

according to the specification, while being enabling for a catalyst, such as cobalt, manganese, iron, bromine compounds, does not reasonably provide enablement for all the oxidation catalyst components in the field of chemistry. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to all the catalysts unrelated to the current invention commensurate in scope with these claims.

Furthermore, the instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without **undue experimentation.** Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation, citing *Ex Parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

1) the quantity of experimentation necessary,

2) the amount of direction or guidance provided,

3) the presence or absence of working examples,

4) the nature of the invention,

5) the state of the prior art,

6) the relative skill of those in the art,

7) the predictability of the art, and

8) the breath of the claims.

The Nature of the Invention

The nature of the invention is described below:

1. A method for producing terephthalic acid comprising:

(A) a step of oxidizing paraxylene in a solvent mainly comprising acetic acid in the presence of a catalyst with molecular oxygen to obtain a slurry containing terephthalic acid crystals;

The State of the Prior Art

The states of the prior art are described as followed:

Streich et al (U.S. 5,175,355) discloses a preparation of purified terephthalic acid containing 200 ppmw or less of p-toluic acid by using pressure filtration to recover the pure terephthalic acid from an aqueous slurry containing the crystallized TA and p-toluic acid .

Janulis (U.S. 5,110,984) discloses a purification method for isophthalic acid in the following steps: (a) dissolving crude isophthalic acid in a feed solution containing a polar solvent at a temperature of from 100^0 C to 300^0 C., (b) crystallizing the isophthalic acid by cooling, (c) separating the isophthalic acid and drying it, (d) recycling the remain liquid portion after the separation of the isophthalic acid crystals.

Puskas et al (U.S. 4,467,111) discloses a process for producing a purified terephthalic acid by reacting a mixture of hydrogen and crude terephthalic acid in the presence of a palladium metal catalyst on a porous carbonaceous support at a temperature of from 100^0 C. To 300^0 C. .

Meyer (U.S. 3,584,039) discloses a process of producing fiber-grade terephthalic acid from a crude terephthalic acid containing 4-carboxybenzaldehyde which was obtained by the catalytic liquid phase oxidation of p-xylene with molecular oxygen in the presence of cobalt, manganese, iron, bromine.

Nienburg et al (U.S. 3,799,976) discloses a process for purifying terephthalic acid by a reductive treatment an aqueous solution containing a crude terephthalic acid and formic acid in the presence of a noble metal catalyst such as osmium, iridium, and ruthenium at an elevated temperature of 230^0 C..

As the prior art have been discussed in the above, there is no conclusive data that all the kinds of the catalyst are capable of carrying out the oxidation process of producing terephthalic acid except some catalysts, such as cobalt, manganese, iron, bromine.

The predictability or lack thereof in the art

In the instant case, the instant claimed invention is highly unpredictable since one skilled in the art would recognize that not every catalyst would work on the claimed

process in the same way as do certain combined catalysts such as cobalt, manganese, iron, bromine disclosed in the specification.

According to T.P.Hilditch, the author of the "Catalytic Processes in Applied Chemistry" (see page Xiii, 1929), there is a definitive reason for an unpredictable aspect of the catalysts in the art of organic chemistry. T.P.Hilditch expressly teaches that any solid catalyst would not work for any kind of the reaction process; for example, the specific catalysts such as vanadium or molybdenum oxides can be used for the oxidation of hydrocarbons; on the other hand, this same kind of catalysts will not apply to the other types of the reaction process in the followings: the chlorine manufacture, the oxidation of fatty acids and nitric oxide, ammonia synthesis, ammonia oxidation , sulfuric acid manufacture, and etc. (see page Xiii).

Furthermore, the specification of the claimed invention does support the very idea of the unpredictable aspect of the catalysts by disclosing the following specific , workable catalyst for the oxidation (see page 6), not all kinds of the catalyst known in the art will work.

Moreover, chemical reactions are well-known to be unpredictable, *In re Marzocchi*, 169 USPQ 367, *In re Fisher*, 166 USPQ 18. Additionally, catalytic processes, such as are present here, are inherently unpredictable. The U.S. District Court District of Connecticut held in MOBIL *OIL CORPORATION v. W.R. GRACE & COMPANY*, 180 USPQ 418 that "there is an inherent mystery surrounding the

unpredictability of the performance of catalysts; a mystery which is generally recognized and acknowledged by chemists in the cracking art. This is one more reason why the presumption of patent validity "should not be disregarded especially in a case of this sort where the intricate questions of [bio]chemistry involved are peculiarly within the particular competence of the experts of the Patent Office." *Merck & Co. v. Olin Mathieson Chemical Corp.*, 253 F.2d 156, 164, 116 USPQ 484, 490 (4th Cir. 1958)". "The catalytic action can not be forecast by its chemical composition, for such action is not understood and is not known except by actual test, *Corona Cord Tire Co. v. Dovan Chemical Corp.*, 276 U.S. 358, 368-369 (1928). Also see, *Application of Grant*, 304 F.2d 676, 679, 134 USPQ 248, 250-251 (CCPA 1962); *Rich Products Corp. v. Mitchell Foods, Inc.*, 357 F.2d 176, 181, 148 USPQ 522, 525-526 (2d Cir. 1966), cert. denied 385 U.S. 821, 151 USPQ 757 (1966); *Ling-Temco-Vought, Inc. v. Kollsman Instrument Corp.*, 372 F.2d 263, 268, 152 USPQ 446, 450-451 (2d Cir. 1967); *Georgia-Pacific Corp. v. United States Plywood Corp.*, 258 F.2d 124, 132-133, 118 USPQ 122, 128-129."

Therefore, from the above, it is clear that the use of every generic "a catalyst" will not form the desired claimed product in a good yield.

The amount of direction or guidance present

The direction present in the instant specification is that not any catalyst can be led to the formation of the desired product. According to the specification, it is silent as

to how any catalyst can be led to the formation of the desired product and fails to provide guidance as to whether any solid catalyst is sufficient enough to allow to form the desired product in sufficient quantities; the specification fails to provide a correlation between the claimed process of the invention and the functional language of any solid catalyst .

The presence or absence of working examples

There are one Co, Mn, Br catalyst system for producing the desired compound in the specification. This can not be the representative for all the catalysts which would work for the claimed process. Thus, the specification fails to provide enough working examples as to how all types of catalysts can be resulted in the claimed products, i.e. again, there is no correlation between the functional language of any catalyst and the desired final product.

The breadth of the claims

The breadth of the claims is that any catalyst would work on the claimed process without considering the affect or impact of the different catalysts on the starting compound , thereby affecting the yield of the desired final product.

The quantity of experimentation needed

The quantity of experimentation needed is large. One of skill in the art would need to determine which one of the catalysts would be capable of forming the desired product and would furthermore then have to determine which one of the catalysts would not be resulted in the claimed desired compounds in a sufficient quantity.

The level of the skill in the art

Even though the level of skill in the art of producing the crude terephthalic acid by oxidation process is high, the skilled artisan employing this process would be a BS Chemist working in a laboratory facility. He would know how to use the taught oxidation catalyst, but not how to select other types of catalyst without trial and error.

Therefore, in view of the Wands factors and In re Fisher (CCPA 1970) discussed above, to practice the claimed invention herein, a person of skill in the art would have to engage in undue experimentation to test which catalyst can be employed to produce the desired claimed compound encompassed in the instant claims, with no assurance of success.

Claims 2-5 and their corresponding dependent claims are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

According to the specification, the crude terephthalic acid is contacted with hydrogen in the presence of a catalyst; however, this statement does not reasonably provide enablement for all the catalysts for the hydrogenation process in the field of chemistry.

Furthermore, the instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without **undue experimentation.** Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation, citing *Ex Parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

1) the quantity of experimentation necessary,

2) the amount of direction or guidance provided,

3) the presence or absence of working examples,

4) the nature of the invention,

5) the state of the prior art,

6) the relative skill of those in the art,

7) the predictability of the art, and

8) the breath of the claims.

The Nature of the Invention

The nature of the invention is described below:

2. A method for producing terephthalic acid comprising:

(E) a step of at least partially reducing impurities in crude terephthalic acid by bringing said crude terephthalic acid into contact with hydrogen in a solvent mainly comprising water in the presence of a catalyst;

The State of the Prior Art

The states of the prior art are described as followed:

Streich et al (U.S. 5,175,355) discloses a preparation of purified terephthalic acid containing 200 ppmw or less of p-toluic acid by using pressure filtration to recover the pure terephthalic acid from an aqueous slurry containing the crystallized TA and p-toluic acid .

Janulis (U.S. 5,110,984) discloses a purification method for isophthalic acid in the following steps: (a) dissolving crude isophthalic acid in a feed solution containing a polar solvent at a temperature of from 100^0 C to 300^0 C., (b) crystallizing the isophthalic acid by cooling, (c) separating the isophthalic acid and drying it, (d) recycling the remain liquid portion after the separation of the isophthalic acid crystals.

Puskas et al (U.S. 4,467,111) discloses a process for producing a purified terephthalic acid by reacting a mixture of hydrogen and crude terephthalic acid in the presence of a palladium metal catalyst on a porous carbonaceous support at a temperature of from 100^0 C. To 300^0 C. .

Meyer (U.S. 3,584,039) discloses a process of producing fiber-grade terephthalic acid from a crude terephthalic acid containing 4-carboxybenzaldehyde which was obtained by the catalytic liquid phase oxidation of p-xylene with molecular oxygen.

Nienburg et al (U.S. 3,799,976) discloses a process for purifying terephthalic acid by a reductive treatment an aqueous solution containing a crude terephthalic acid and

formic acid in the presence of a noble metal catalyst such as osmium, iridium, and ruthenium at an elevated temperature of 230^0 C..

As the prior art have been discussed in the above, there is no conclusive data that all the kinds of the catalyst are capable of carrying out the hydrogenation process of terephthalic acid except some catalysts, such as palladium, osmium, iridium, and ruthenium.

The predictability or lack thereof in the art

In the instant case, the instant claimed invention is highly unpredictable since one skilled in the art would recognize that not every catalyst would work on the claimed process in the same way.

According to T.P.Hilditch, the author of the "Catalytic Processes in Applied Chemistry" (see page Xiii, 1929), there is a definitive reason for an unpredictable aspect of the catalysts in the art of organic chemistry. T.P.Hilditch expressly teaches that any solid catalyst would not work for any kind of the reaction process; for example, the specific catalysts such as vanadium or molybdenum oxides can be used for the oxidation of hydrocarbons; on the other hand, this same kind of catalysts will not apply to the other types of the reaction process in the followings: the chlorine manufacture, the oxidation of fatty acids and nitric oxide, ammonia synthesis, ammonia oxidation , sulfuric acid manufacture, and etc. (see page Xiii).

Moreover, chemical reactions are well-known to be unpredictable, *In re Marzocchi*, 169 USPQ 367, *In re Fisher*, 166 USPQ 18. Additionally, catalytic processes, such as are present here, are inherently unpredictable. The U.S. District Court District of Connecticut held in MOBIL *OIL CORPORATION v. W.R. GRACE & COMPANY*, 180 USPQ 418 that "there is an inherent mystery surrounding the unpredictability of the performance of catalysts; a mystery which is generally recognized and acknowledged by chemists in the cracking art. This is one more reason why the presumption of patent validity "should not be disregarded especially in a case of this sort where the intricate questions of [bio]chemistry involved are peculiarly within the particular competence of the experts of the Patent Office." *Merck & Co. v. Olin Mathieson Chemical Corp.*, 253 F.2d 156, 164, 116 USPQ 484, 490 (4th Cir. 1958)". "The catalytic action can not be forecast by its chemical composition, for such action is not understood and is not known except by actual test, *Corona Cord Tire Co. v. Dovan Chemical Corp.*, 276 U.S. 358, 368-369 (1928). Also see, *Application of Grant*, 304 F.2d 676, 679, 134 USPQ 248, 250-251 (CCPA 1962); *Rich Products Corp. v. Mitchell Foods, Inc.*, 357 F.2d 176, 181, 148 USPQ 522, 525-526 (2d Cir. 1966), cert. denied 385 U.S. 821, 151 USPQ 757 (1966); *Ling-Temco-Vought, Inc. v. Kollsman Instrument Corp.*, 372 F.2d 263, 268, 152 USPQ 446, 450-451 (2d Cir. 1967); *Georgia-Pacific Corp. v. United States Plywood Corp.*, 258 F.2d 124, 132-133, 118 USPQ 122, 128-129."

Therefore, from the above, it is clear that the use of every generic "a catalyst" will not form the desired claimed product in a good yield.

The amount of direction or guidance present

The direction present in the instant specification is that not any catalyst can be led to the formation of the desired product. According to the specification, it is silent as to how any catalyst can be led to the formation of the desired product and fails to provide guidance as to whether any solid catalyst is sufficient enough to allow to form the desired product in sufficient quantities; the specification fails to provide a correlation between the claimed process of the invention and the functional language of any solid catalyst .

The presence or absence of working examples

There is no working example using the catalyst for producing the desired compound in the specification. Simply, there is no representative for all the catalysts which would work for the claimed process. Thus, the specification fails to provide enough working examples as to how all types of catalysts can be resulted in the claimed products, i.e. again, there is no correlation between the functional language of any catalyst and the desired final product.

The breadth of the claims

The breadth of the claims is that any catalyst would work on the claimed process without considering the affect or impact of the different catalysts on the starting compound , thereby affecting the yield of the desired final product.

The quantity of experimentation needed

The quantity of experimentation needed is large. One of skill in the art would need to determine which one of the catalysts would be capable of forming the desired product and would furthermore then have to determine which one of the catalysts would not be resulted in the claimed desired compounds in a sufficient quantity.

The level of the skill in the art

Even though the level of skill in the art of reducing the crude terephthalic acid by hydrogenation process is high, the skilled artisan employing this process would be a BS Chemist working in a laboratory facility. He would know how to use the taught hydrogenation catalyst, but not how to select other types of catalyst without trial and error.

Therefore, in view of the Wands factors and In re Fisher (CCPA 1970) discussed above, to practice the claimed invention herein, a person of skill in the art would have to engage in undue experimentation to test which catalyst can be employed to produce the desired claimed compound encompassed in the instant claims, with no assurance of success.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Packer et al (U.S. 4,438,279).

Packer et al teaches a process of producing terephthalic acid by oxidation of para xylene and the catalytic hydrogenation of the crude terephthalic acid in the following example (see col. 7 ,lines 1-48) :

EXAMPLE 1

A fluid oxidation effluent produced from the air oxidation of p-xylene in the presence of acetic acid having 5 weight percent water (95 weight percent acetic acid) containing 0.5 milligram atoms of cobalt, 1.5 milligram atoms of manganese and 2.8 milligram atoms of bromine are continuously charged into a stirred-tank type oxidation vessel closed except for inlets for continuous charging of said liquids, continuous charging and return of condensate of exhaust vapors and outlets for the reaction's exhaust (nitrogen, unused oxygen, water vapor, acetic acid vapor and oxides of carbon) containing about 3 volume percent oxygen and the overflow of oxidation effluent. The weight ratio of said acetic acid solution to p-xylene feeds is 3:1. The oxidation reaction is conducted at a gauge pressure of 28 kg/cm^2 and a temperature of 225° C. Such reaction conditions produce an oxidation effluent containing 32.5 weight percent total solids.

A 400-gram sample of said fluid oxidation effluent is taken, cooled to 100° C. and filtered. The resulting filter cake is washed with acetic acid (1:1 weight ratio), dried and analyzed for 4-CBA. The partially purified terephthalic acid, 130 grams, is found to contain 0.26 weight percent 4-CBA.

A second 400-gram sample of the oxidation effluent is taken and diluted with hot (225° C.) 890 grams of 95 percent acetic acid (5 percent water). The resulting mixture containing 10 weight percent total solids is charged to an autoclave fitted with a stirrer and charged with hydrogen to the gauge pressure of 7 kg/cm^2. The diluted oxidation effluent is stirred and heated to the temperature of 285° C. and gauge pressure of 50 kg/cm^2. The autoclave is also fitted with a mesh catalyst basket which can be raised above or lowered into the liquid contents. Before sealing the autoclave there is placed 5.5 grams of particulate catalyst comprising 0.5 weight percent metallic palladium dispsersed on high surface per unit weight activated carbon support. The catalyst is lowered into the hot stirred liquid, and left therein for 100 minutes and then raised out of the liquid to separate catalyst therefrom. The contents of the autoclave are cooled to 25° C. The suspension at the temperature of 25° C. is filtered to collect the terephthalic acid precipitate which is then washed with fresh acetic acid (1:1 weight ratio) and dried.

The first vapors flashed while decompressing from the hydrogen free solution to the first crystallization pressure (e.g., from 38 kg/cm^2 to 25 kg/cm^2 gauge pressure) may, in addition to vapors of water and acetic acid, also contain vapors of p-toluic acid stripped from solution by the flashed vapors of water and acetic acid. Such hot pressurized mixture of vapors can better be used to heat either the oxidation effluent or a heat exchange fluid which can be used in a thermodynamic energy conversion (e.g., turbine) to provide mechanical energy for power generation or air compression. Thereafter, the cooled and further decompressed mixture can be used to provide direct heat to concentrate the mother liquor for its recycle to the oxidation as source of catalyst components and so that its oxidizable aromaticcontent (p-toluic acid and 4-CBA) can be with fresh p-xylene converted to additional terephthalic acid. (see col. 5 ,lines 17-33).

The instant invention, however, differs from the prior art in that the claimed internal energy possessed by the terephthalic acid cakes or liquid on it does not specify its use for evaporating the liquid in the cake.

Even so, the prior art does teach that "hot pressurized mixture of vapors can be used to heat either the oxidation effluent or a heat exchange fluid that can be used in a thermodynamic energy conversion." (see col. 5 ,lines 23-26). From this passage, it does imply that it seems reasonable to employ the internal energy for evaporating the liquid in the cake; this is within the purview of the skilled artisan in the art.

Therefore, it would have been obvious to the skilled artisan in the art to be motivated to use the heat from " hot pressurized mixture of vapors" in order to evaporate the liquid in the cake so as to economize the energy consumption during the process. This is because the skilled artisan in the art would expect or predict such a manipulation to be feasible and success as guidance shown in the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571-272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Taylor Victor Oh, MSD,LAC
Primary Examiner
Art Unit: 1625
11/18/07